William Chargin

git.io/wc • wchargin
Carnegie Mellon University School of Computer Science GPA 4.0

Please visit my website at git.io/wc for an interactive résumé, and more up-to-date and detailed project descriptions.

Experience

Khan Academy **Mountain View, CA**
Software Developer Intern (infrastructure) *May–August 2016*

- Extended the site's core content system to enable creating and curating content separately for different languages and locales, as opposed to simply translating existing content.
- Conducted extensive testing of correctness, performance, memory, and cost to ensure a smooth transition upon launch.
- Improved tooling to help translators, content creators, and international teams work effectively with the new content system.

Khan Academy **Mountain View, CA**
Software Developer Intern (frontend and backend) *June–September 2015*

- Frontend, backend: added CMS support for thumbnail upload, compositing, storage, and usage; implemented streaks (à la Duolingo).
- Backend: implemented hot loading of JSX and CSS/Less for development; sped up internal content publish process by 57%.

Cal Poly Computer Science Department **San Luis Obispo, CA**
Instructional Student Assistant, Fundamentals of Computer Science II *Fall 2014–Spring 2015*

- Designed, implemented, tested, and documented a flexible and extensible automated grading system. (See *Projects* below.)

Army High Performance Computing Research Center **Stanford University**
Student Researcher *June–August 2014*

- First pre-undergraduate student ever admitted to this research program.
- Developed real-time physics simulations on low-powered portable devices. (See *Projects* below.)
- Commended on excellence of research report.

Selected projects

Microcomputer assembler and simulator JavaScript

- Web-based interactive simulator for the LC-3, a teaching microcomputer, to supersede the standard Windows application.
- Simulator includes accurate instruction cycle, debugging tools, polling-based and interrupt-driven I/O, and file upload/download.
- Released as free software at wchargin.github.io/lc3web. Used by more than a thousand students of Cal Poly's CPE 225 course.

Automated grading system Bash, Java

- Automatically tests and grades student work for style and correctness, according to customizable and extensible grading modules.
- Grades and archives all student work at assignment due dates, and immediately emails students with helpful feedback.
- Includes tool to efficiently manually investigate failing submissions, to ensure that all grades are accurate.

Real-time portable physics Java, C++

- At AHPCRC, leveraged extensive existing physics libraries for real-time simulation on Android tablets.
- Simulations: articulated rigid body, cloth, smoke, dynamic paint. Rendering: UV mapped textures, fog.

Model United Nations debate moderation system Java

- Created and deployed an application system that unifies the tools that chairs need to aptly moderate debates.
- Implemented networking across multiple computers to maximize efficiency; separate modes for head chair, director, and rapporteur.
- Deployed system at multiple conferences; system used by dozens of chairs and hundreds of delegates.
- Released as free software; available at wchargin.github.io/kiosk/.

Selected computer languages and systems

Proficient or better in: Python, Java, C, Haskell; JavaScript, React; Google App Engine; Git; LaTeX, Blender 3D.

Selected academic honors

University Honors Program, Cal Poly SLO. Honors Public Speaking: Best Informative Speaker, Best Persuasive Speaker.

Grade 12 Valedictorian. National Merit Scholar. National AP Scholar. California Scholarship Federation Sealbearer. Inter-Departmental Award (inaugural; created for me). Best Mandarin I Student.

Grade 11 Most Outstanding Math and Science Student. Best Junior in { Math, Spanish, History }.